IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

SOVEREIGN PEAK VENTURES, LLC,	§	
	§	
Plaintiff,	§	
	§	**JURY TRIAL DEMANDED**
v.	§	
	§	
ASUSTEK COMPUTER INC.,	§	**C.A. NO. _____**
	§	
Defendant.	§	
	§	

PLAINTIFF'S COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Sovereign Peak Ventures, LLC ("SPV") files this Complaint against Defendant ASUSTeK Computer Inc. ("ASUSTeK" or "Defendant") for infringement of U.S. Patent No. 6,925,097 (the "'097 patent"), U.S. Patent No. 7,685,498 (the "'498 patent"), U.S. Patent No. 8,019,169 (the "'169 patent"), U.S. Patent No. 8,737,476 (the "'476 patent"), U.S. Patent No. 8,971,401 (the "'401 patent"), U.S. Patent No. 9,042,457 (the "'457 patent"), U.S. Patent No. 9,414,059 (the "'059 patent"), and U.S. Patent No. 9,667,972 (the "'972 patent"), collectively, the "Asserted Patents."

THE PARTIES

1. Sovereign Peak Ventures, LLC is a Texas limited liability company, with a principal place of business in Allen, TX. SPV resides in this District.

2. On information and belief, ASUSTeK is a corporation organized under the laws of Taiwan with a principal place of business at 1F, No. 15, Li-De Road, Beitou District, Taipei 112, Taiwan, R.O.C. ASUSTeK is engaged in making, using, selling, offering for sale, and/or importing, and/or induces its subsidiaries, affiliates, retail partners, and customers in the making, using, selling, offering for sale, and/or importing throughout the United States, including within

this District, products, such as mobile phones, laptops, and computers, accused of infringement. On information and belief, ASUSTeK, along with other foreign and U.S.-based subsidiaries (which act as part of a global network of overseas sales and manufacturing subsidiaries on behalf of ASUSTeK), have operated as agents of one another and vicariously as parts of the same business group to work in concert together and enter into agreements that are nearer than arm's length to provide a distribution channel of infringing products within this District and the U.S. nationally.

3. The Asserted Patents were invented by employees of Panasonic Corporation ("Panasonic"). Founded in 1918, Panasonic has been at the forefront of the electronics industry for over a century. Panasonic made numerous innovations in the home appliance, battery, mobile phone, and television industries. Indeed, Panasonic's invention of the "Paper Battery" in 1979 is widely credited as enabling the compact electronics of today. In 1991, Panasonic released the Mova P, the smallest and lightest mobile phone on the market, which revolutionized the industry by showing the demand for a compact, lightweight device. Panasonic also produced the first wide-format plasma display and developed the first digital television for the U.S. market. Panasonic's history of innovation is also borne out by its intellectual property. Indeed, a search of the USPTO database where the patent assignee is "Panasonic" yields over 27,000 matches.

4. Prior to the filing of the Complaint, SPV repeatedly attempted to engage ASUSTeK and/or its agents in licensing discussions related to the Asserted Patents, including but not limited to providing a non-discriminatory offer to license the portfolio on a worldwide basis, including both implementation and any standards-essential patents in the portfolio, that was reasonable for a license to be taken in the absence of litigation. ASUSTeK ignored these overtures. ASUSTeK's past and continuing sales of its devices i) willfully infringe the Asserted Patents and ii)

impermissibly take the significant benefits of SPV's patented technologies without fair compensation to SPV.

5. On information and belief, ASUSTeK operates in agency with others, including its foreign and U.S.-based subsidiaries. *See, e.g.*, https://successstory.com/companies/asus ("As of 2009, the company had manufacturing facilities in the cities of Taipei, Luzhu, Nangan and Guishan, in Taiwan; Suzhou and Chongqing in Mainland China; Cluded Juarez in Mexico; and Ostrava in Czech Republic. The company operates through its 50 service sites across 32 countries and over 400 service partners worldwide."); https://www.engadget.com/2015-08-16-asus-chairman-jonney-shih-interview.html (As of August 16, 2015, "ASUS is over 13,800 people strong, around 6,000 of whom are based in Taiwan. … the company now offers a broad range of products including laptops, tablets, all-in-ones, smartphones, graphics cards, routers and more.") ASUSTeK is engaged in making, using, selling, offering for sale, and/or importing, and/or induces its subsidiaries, affiliates, retail partners, and customers in the making, using, selling, offering for sale, and/or importing throughout the United States, including within this District, products, such as mobile phones, laptops, and computers, accused of infringement. ASUSTeK operates in agency with others, including its foreign and U.S.-based subsidiaries, to provide a distribution channel of infringing products within this District and the U.S. nationally. ASUSTeK, itself and between and amongst its agents and foreign and U.S.-based subsidiaries, purposefully direct the Accused Products into established distribution channels within this District and the U.S. nationally.

6. On information and belief, ASUSTeK maintains a corporate presence in the United States via at least its, U.S.-based sales subsidiaries including, ASUS Computer International ("ACI"). ACI is a corporation organized under the laws of the State of California, with a principal place of business at 48720 Kato Road, Fremont, California 94538. ACI is a wholly-owned

subsidiary of ASUSTeK. ACI provides sales, distribution, research, and development support in North America for its parent ASUSTeK, which wholly owns ACI. ACI is an agent of ASUSTeK. At the direction and control of ASUSTeK, U.S.-based sales subsidiaries including, ACI, import infringing products, such as mobile phones, laptops, and computers, into the United States and this District.

7. On information and belief, ASUSTeK and its U.S.-based sales subsidiaries (which act as part of a global network of overseas sales and manufacturing subsidiaries on behalf of ASUSTeK) have operated as agents of one another and vicariously as parts of the same business group to work in concert together and enter into agreements that are nearer than arm's length. For example, ASUSTeK, alone and via at least the activities of its U.S.-based sales subsidiaries (e.g., ACI), conducts business in the United States, including importing, distributing, and selling mobile phones, laptops, and computers that incorporate devices, systems, and processes that infringe the Asserted Patents in Texas and this judicial district. *See Trois v. Apple Tree Auction Center, Inc.*, 882 F.3d 485, 490 (5th Cir. 2018) ("A defendant may be subject to personal jurisdiction because of the activities of its agent within the forum state…."); *see also Cephalon, Inc. v. Watson Pharmaceuticals, Inc.*, 629 F. Supp. 2d 338, 348 (D. Del. 2009) ("The agency theory may be applied not only to parents and subsidiaries, but also to companies that are 'two arms of the same business group,' operate in concert with each other, and enter into agreements with each other that are nearer than arm's length.").

8. Through offers to sell, sales, imports, distributions, and other related agreements to transfer ownership of ASUSTeK's electronics, such as mobile phones, laptops, and computers, with distributors and customers operating in and maintaining a significant business presence in the

U.S. and/or its U.S. subsidiaries (e.g., ACI), ASUSTeK does business in the U.S., the state of Texas, and in the Eastern District of Texas.

JURISDICTION AND VENUE

9. This action arises under the patent laws of the United States, namely 35 U.S.C. §§ 271, 281, and 284-285, among others.

10. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

11. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(c). The Defendant is a foreign entity and may be sued in any judicial district under 28 U.S.C. § 1391(c)(3).

12. This Court has general and specific personal jurisdiction over Defendant pursuant to due process and/or the Texas Long Arm Statute because, inter alia, (i) Defendant has done and continues to do business in Texas and (ii) Defendant has, directly and through intermediaries, committed and continue to commit acts of patent infringement in the State of Texas, including making, using, offering to sell, and/or selling accused products in Texas, and/or importing accused products into Texas, including by Internet sales and sales via retail and wholesale stores, inducing others to commit acts of patent infringement in Texas, and/or committing a least a portion of any other infringements alleged herein. Defendant has placed, and is continuing to place, infringing products into the stream of commerce, via an established distribution channel, with the knowledge and/or understanding that such products are sold in Texas, including in this District. Defendant has derived substantial revenues from its infringing acts occurring within Texas and within this District. Defendant has substantial business in this State and judicial district, including: (A) at least part of its infringing activities alleged herein; and (B) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from infringing goods

offered for sale, sold, and imported, and services provided to Texas residents vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers.

13. This Court has personal jurisdiction over Defendant, directly or through intermediaries, distributors, importers, customers, subsidiaries, and/or consumers including its U.S.-based sales subsidiaries, e.g., ACI. Through direction and control of such subsidiaries, Defendant has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action and/or has established minimum contacts with Texas such that personal jurisdiction over Defendant would not offend traditional notions of fair play and substantial justice. ACI is a wholly-owned subsidiaries of ASUSTeK. The primary business of ACI is the marketing and sale of electronic products in the United States. ASUSTeK has a 100% controlling ownership interest in ACI and maintains more than half of the voting rights for such subsidiaries as its basis for control. Upon information and belief, ASUSTeK compensates ACI for its sales support services in the United States. As such, ASUSTeK has a direct financial interest in its U.S.-based subsidiaries, and vice versa.

14. Personal jurisdiction is proper because Defendant has committed acts of infringement in this District. This Court has personal jurisdiction over Defendant because, *inter alia*, this action arises from activities Defendant purposefully directed towards the State of Texas and this District.

15. Exercising personal jurisdiction over Defendant in this District would not be unreasonable given Defendant's contacts in this District, the interest in this District of resolving disputes related to products sold herein, and the harm that would occur to SPV.

16. In addition, Defendant has knowingly induced and continues to knowingly induce infringement within this District by advertising, marketing, offering for sale and/or selling devices pre-loaded with infringing functionality within this District, to consumers, customers, manufacturers, distributors, resellers, partners, and/or end users, and providing instructions, user manuals, advertising, and/or marketing materials which facilitate, direct or encourage the use of infringing functionality with knowledge thereof.

17. Personal jurisdiction also exists specifically over Defendant because Defendant, directly or through affiliates, subsidiaries, agents, or intermediaries, transacts business in this State or purposefully directed at this State (including, without limitation, retail stores including Best Buy and Walmart) by making, importing, offering to sell, selling, and/or having sold infringing products within this State and District or purposefully directed at this State or District.

18. Personal jurisdiction also exists specifically because Defendant has overlapping executives, interlocking corporate structures, and close relationships as manufacturer, importer, and distributor of the products accused of infringement.

19. To the extent the foreign Defendant is not subject to jurisdiction in any state's court of general jurisdiction, exercising jurisdiction over Defendant in this State and this District would be consistent with due process and this State's long-arm statute and under national contacts in light of the facts alleged in this Complaint.

20. In addition, Defendant, directly or through affiliates, subsidiaries, agents, or intermediaries, places infringing products into the stream of commerce knowing they will be sold and used in Texas, and economically benefits from the retail sale of infringing products in this State. For example, Defendant's products have been sold and are available for sale in this District at Best Buy and Walmart retail stores and are also available for sale and offered for sale in this

District through online retailers such as Best Buy, Walmart, and Amazon. ASUSTeK also advertises its infringing products to consumers in Texas and this District through its agent's websites. *See, e.g.*, https://www.asus.com/us/.

21. With respect to the Asserted Patents, the Accused Products are devices that support H.265 video, including, but not limited to mobile phones (e.g.,ROG Phone 2 ZS660KL, ROG Phone 3, 3 Strix, ROG Phone 5, ROG Phone 5 Pro, ROG Phone 5 Ultimate, ROG Phone ZS600KL, Zenfone 3 Deluxe 5.5 ZS550KL, Zenfone 3 Deluxe ZS570KL, Zenfone 3 Max ZC553KL, Zenfone 3 ZE552KL, ZE520KL, ZA520KL, Zenfone 3 Zoom ASUS_ZE553KL (ASUS_Z01HDA, ASUS_Z01HD), Zenfone 4 Max, Max Pro ZC554KL, Zenfone 4 Pro ZS551KL, Zenfone 4 Selfie Pro ASUS_ZD552KL (ASUS_Z01MD), Zenfone 4 ZE554KL, Zenfone 5 Lite ZC600KL, Zenfone 5 ZE620KL, ZF620KL, Zenfone 5Q ZC600KL (USA), Zenfone 5z ASUS_ZS620KL (ASUS_Z01HD, ASUS_Z01RS, ASUS_Z01RD), Zenfone 6 ZS630KL, Zenfone 7, 7 Pro, Zenfone 8, 8 Flip, Zenfone AR V570KL (Verizon), Zenfone Go ZB500KL, Zenfone Live (L2), Zenfone Max (M1) ZB555KL, ZB556KL, Zenfone Max (M2) ZB633KL, Zenfone Max Plus (M2) ZB634KL, Zenfone Max Pro (M1) ZB601KL, ZB602K, Zenfone Max Pro (M2) ZB631KL, Zenfone Max Shot ZB634KL, Zenfone Max ZC550KL (ASUS_Z010D), Zenfone V V520KL (ASUS_A006)) and laptops and computers (e.g., ASUS M241, ASUS V241, ASUS V161, ASUS S300MA, ASUS S340MF, ASUS M509, ASUS M415, ASUS M3700 (AMD Ryzen 5000 Series), ASUS BR1100C, ASUS BR1100F, R543, ASUS E510, ASUS L210, ASUS L410, ASUS L510, ASUS X543, ASUS E410, ASUS X509, ASUS M415 (AMD Ryzen 5000 Series), ASUS M515 (AMD Ryzen 5000 Series), ASUS M570, ASUS W202, ExpertBook B1 B1400, ExpertBook B1 B1500, ExpertBook B9 B9450 (11th Gen Intel), ASUS ExpertBook B9 B9450, ASUS ExpertBook P2, ASUSPRO P3540, ASUSPRO P5440, ExpertCenter D5 SFF D500SA, ExpertCenter D7 SFF

D700SA, ExpertCenter D9 SFF D900SA, ASUSPRO D641SC, ASUSPRO D340MC, Mini PC PN51, Mini PC PB61, Mini PC PB60S, Mini PC PB62, Mini PC PN50, Mini PC PN41, Mini PC ProArt PA90, ProArt StudioBook Pro 15 W500, ProArt StudioBook Pro 17 W700, ProArt StudioBook Pro X W730, ProArt StudioBook 15 H500, ProArt StudioBook 17 H700, ProArt StudioBook One W590, ROG Huracan G21CX-UB763, ROG Flow X13 GV301QH-DS96, ROG Flow X13 GV301QH-XS98-B, ROG Mothership GZ700GX-XB98K, ROG G703VI-XH74K, G10DK-WS764 G10DK-WB764, ROG Strix G15 Advantage Edition G513QY-212.SG15, ROG Strix G17 G713QM-ES74, ROG Strix G15 G513QM-ES74, ROG Strix SCAR 15 G533QR-DS76Q, ROG Strix SCAR 15 G533QS-DS76, ROG Strix SCAR 17 G732LWS-DS76, ROG Strix SCAR 17 G733QSA-XS99, ROG Strix G17 G713QR-ES96, ROG Strix G15 G513QM-ES94, ROG Strix G15 G513QR-ES96, ROG Strix G17 G713QM-ES94, ROG Strix SCAR 15 G533QR-XS98Q, ROG Strix SCAR 15 G533QS-XS98Q,ROG Strix SCAR 17 G732LWS-XS98, ROG Strix SCAR 17 G732LXS-XS94, ROG Strix SCAR 17 G733QR-DS98, ROG Strix SCAR 17 G733QS-XS98Q, ROG Strix GA35 G35DX GA35DX-MB776, ROG Strix GA35 G35DX GA35DX-XB989, ROG Strix GA35 G35DX GA35DX-XB999, ROG Strix G15 G512LWS-PH74, ROG Strix G15 G512LW-ES76, ROG Strix G15 G512LW-XS78, ROG Strix GT15 G15CK-BS764, ROG Strix G15 G512LU-RS74, ROG Strix G15 G512LU-XS74, ROG Strix G15 G512LW-WS74, ROG Strix G15 G512LI-RS73, ROG Strix G17 G712LW-XS78, ROG Strix G17 G712LU-RS73, ROG Strix G17 G712LW-ES74, ROG Strix SCAR 15 G532LWS-DS76, ROG Strix GT35 G35CZ-XH988, ROG Strix GT35 G35CZ-XB982, ROG Strix GT35 G35CZ-XS991, ROG Strix SCAR 15 G532LWS-XS96, ROG Strix SCAR 15 G532LWS-XS99, ROG Strix SCAR 17 G732LXS-XS99, ROG Strix GA15 GA15DH-ES557, ROG Strix GA15 GA15DH-DS757, ROG Strix GL10DH-PH552, ROG Strix GA15 GA15DH-BS762, ROG Strix GL10DH-MH772, ROG

Strix GL10DH-NH764, ROG Strix GL10DH-PH762, ROG Strix GL10DH-PH772, ROG Strix GL10DH-RH752, ROG Strix GA35 GA35DX-XS99X, ROG Strix G GL531GU-WB53, ROG Strix G GL531GU-WB53-B, ROG Strix G G531GT-AL123T, ROG Strix G GL531GU-WB74, ROG Strix Hero III G531GW-XB74, ROG Strix SCAR III G531GV-DB76, ROG Strix SCAR III G531GW-DB76, ROG Strix SCAR III G531GW-KB71, ROG Strix SCAR III G531GW-XB96, ROG Strix GL12 G21CX-UB763, ROG Strix GL12CX-DH781, ROG Strix GL12CX-XB771, ROG Strix GL12CX-XB781, ROG Strix GL12CX-XB981, ROG Strix GL12 GL10CS-DS751, ROG Strix GL10CS-DS551, ROG Strix Hero II GL504GM-DS74, ROG Strix SCAR II GL504GS-DS74, ROG Strix SCAR II GL504GS-XS76, ROG Strix SCAR II GL504GW-DS74, ROG Strix SCAR II GL704GM-DH74, ROG Strix SCAR II GL704GV-DS74, ROG Strix SCAR II GL704GW-DS76, ROG Strix SCAR II GL704GW-PS71, ROG Strix GL10CS-DS751, ROG Strix GL12CM-DS762, ROG Strix GL12CP-DS751, ROG Strix GL12CM-DH781-COD, ROG Strix GL12CM-DS761, ROG Strix GL12CM-DS771, ROG Strix GL12CM-DS781, G15 GA502IV-WS74, G15 GA502IV-XS76, ROG Zephyrus G14-ACRNM GA401IVC-RMT01, ROG Zephyrus G14 GA401IV-BR9N6, ROG Zephyrus G14 GA401IV-BS96-WH, ROG Zephyrus G14 GA401IV-XS96, GX701GVR GA401IU-PB96, G15 GA502IV-PH96, ROG Zephyrus S17 GX703HM-DB76, ROG Zephyrus S17 GX703HM-KF001R, ROG Zephyrus Duo 15 SE GX551QR-XS78, ROG Zephyrus Duo 15 SE GX551QM-ES76, ROG Zephyrus G15 GA503QM-BS94Q, ROG Zephyrus G15 GA503QS-BS96Q, ROG Zephyrus G15 GA503QS-XS98Q-WH, ROG Zephyrus G14 GA401QM-XS98Q-WH, ROG Zephyrus Duo 15 SE GX551QS-XS99, ROG Zephyrus Duo 15 SE GX551QR-XS98, ROG Zephyrus M16 GU603HR-K8004R, ROG Zephyrus M16 GU603HE-K8035R, ROG Zephyrus M16 GU603HM-K8030R, ROG Zephyrus S17 GX703HR-KF051R, ROG Zephyrus S17 GX703HR-XB96, ROG Zephyrus

S17 GX703HS-KF004R, ROG Zephyrus S17 GX703HS-XB98, ROG Zephyrus S17 GX703HS-XB99, ROG Zephyrus S17 GX701LWS-XS76, ROG Zephyrus M15 GU502LU-BI7N4, ROG Zephyrus M15 GU502LV-BI7N8, ROG Zephyrus S17 GX701LV-DS76, S17 GX701LXS-XS78, S15 GX502LWS-XS76, S15 GX502LXS-XS79, ROG Zephyrus Duo 15 GX550LWS-XS79, ROG Zephyrus G14 GA401IH-BR7N2BL, GX701GVR GA401IU-BS76, ROG Zephyrus S GX531GX-XB76, S-GX531GX-XB77, ROG Zephyrus G15 GA502DU-WB73, SGX531GX-XS74, M GM501GS-XS74, S GX531GW-AS76, GX501GI-XS74, ROG Zephyrus S GX531GW-AB76, VivoStick PC (TS10), 2021 ASUS TUF Dash F15, 2021 ASUS TUF Gaming F15, 2021 ASUS TUF Gaming F17, ASUS TUF Gaming F15, ASUS TUF Gaming F17, ASUS TUF Gaming A17, ASUS TUF Gaming A15, 2021 ASUS TUF Gaming A17, 2021 ASUS TUF Gaming A15, ASUS TUF Gaming FX505DY, ASUS TUF Gaming FX705DY, ASUS TUF Gaming FX705DD/DT/DU, ASUS TUF Gaming FX505DD/DT/DU, VivoBook 14 X412, ASUS VivoBook 17 M712, VivoBook 15 M513 (AMD Ryzen 5000 Series), VivoBook 15 K513 (11th gen Intel), VivoBook 14 K413 (11th gen Intel), ASUS VivoBook 15 F513IA, VivoBook 17 X712, VivoBook Flip 14 TM420 (AMD Ryzen 5000 Series), ASUS VivoBook Flip 14 TP412, VivoBook Flip 14 TP470, VivoBook Flip 14 TM420, ASUS VivoBook Flip 14 TP401, ASUS VivoBook Flip 12 TP202, K571GT, VivoBook 14 M413, VivoBook S14 (S435), VivoBook S13 S333 (11th Gen Intel), VivoBook S14 S433 (11th Gen Intel), VivoBook S15 S532 (11th Gen Intel), VivoBook S15 S533 (11th Gen Intel), VivoBook 15 M513, ASUS VivoBook S13 S333, ASUS VivoBook S15 S532, ASUS VivoBook S15 S533, VivoBook 14 (M413, AMD Ryzen 5000 Series), VivoMini VC66-C2, Mini PC PN62, Mini PC PN62S, Mini PC PB50, Mini PC PB60, Mini PC PN40, ZenBook 13 OLED (UM325), Q528EH, ZenBook 14 UM425, ZenBook 13 UX325 (11th Gen Intel), ZenBook 14 UX425, ZenBook 14 UX435, ZenBook Duo 14 (UX482), ZenBook 13 OLED

(UX325, 11th Gen Intel), ZenBook 14 UM425 (UA), Q507IQ, ZenBook 14 UX425 (11th Gen Intel), ZenBook Duo UX481, ASUS ZenBook 15 UX534, ZenBook 14 UX434, ZenBook 13 UX325, ASUS ZenBook 13 UX334, Q506, ZenBook Flip S UX371 (11th Gen Intel), ZenBook Flip S13 OLED (UX371, 11th Gen Intel), ZenBook Flip 13 OLED (UX363, 11th Gen Intel), ZenBook Flip 15 Q538EI, ZenBook Flip 13 UX363, Zenbook Flip 13 UX363 (11th gen Intel), ZenBook Pro Duo 15 OLED (UX582), ZenBook Pro 15 OLED (UX535), ZenBook Pro 15 UX535, ZenBook Pro Duo UX581, ZenBook S UX393 (11th Gen Intel), ASUS Chromebook C223, ASUS Chromebook C403, ASUS Chromebook C423, ASUS Chromebook C523, ASUS Chromebook CX1 (CX1100), ASUS Chromebook CX1 (CX1400), ASUS Chromebook Flip CM5 (CM5500), ASUS Chromebook Flip C536, ASUS Chromebook Flip CX5 (CX5500), ASUS Chromebook Flip C436, ASUS Chromebook Flip C214, ASUS Chromebook Flip C433, ASUS Chromebox 4, ASUS Fanless Chromebox) and other devices, as well as, their components, and processes related to the same. On information and belief, ASUSTeK controls or otherwise directs and authorizes all activities of its U.S.-based sales subsidiaries, including ACI. Such directed and authorized activities include, the U.S.-based subsidiaries' using, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the Asserted Patents. The Defendant's U.S.-based sales subsidiaries (e.g., ACI) are authorized to import, distribute, sell, or offer for sale the Accused Products on behalf of Defendant. For example, ASUSTeK researches, designs, develops, and manufactures mobile phones, laptops, and computers, and then directs its U.S.-based sales subsidiaries to import, distribute, offer for sale, and sell the Accused Products in the United States. *See, e.g., United States v. Hui Hsiung*, 778 F.3d 738, 743 (9th Cir. 2015) (finding that the sale of infringing products to third parties rather than for direct import into the U.S. did not "place

[defendants'] conduct beyond the reach of United States law [or] escape culpability under the rubric of extraterritoriality"). Furthermore, Defendant's U.S.-based sales subsidiaries also administer, on behalf of Defendant, requests for service under and any disputes arising from Defendant's limited warranty of the Accused Products sold in the U.S., including in Texas and this judicial district. *See, e.g.*, https://www.asus.com/support/images/upload/warranty/us_ZenFone.pdf; https://bacchus.asus.com/support/images/upload/warranty/us_Notebook.pdf; https://bacchus.asus.com//support/images/upload/warranty/us_Desktop%20PC.pdf. Thus, Defendant's U.S.-based sales subsidiaries, including ACI, conduct infringing activities on behalf of Defendant.

22. On information and belief, Defendant's U.S.-based sales subsidiaries' corporate presence in the United States gives ASUSTeK substantially the same business advantages that it would have enjoyed if it conducted its business through its own offices or paid agents in the state. Defendant's U.S.-based sales subsidiaries are authorized to import, distribute, sell, and offer for sale Defendant's products, including mobile phones, laptops, and computers incorporating infringing devices and processes, on behalf of Defendant. For example, Defendant's U.S.-based sales subsidiaries operate within Defendant's global network of sales subsidiaries. In the U.S., including within the Eastern District of Texas, Defendant's mobile phones, laptops, and computers, which incorporate infringing devices and processes, are imported, distributed, offered for sale, and sold.

23. Via Defendant's alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers maintaining a business presence, operating in, and/or residing in the U.S., Defendant's products, including products and processes accused of infringing the

Asserted Patents, are or have been widely distributed and sold in retail stores, both brick and mortar and online, in Texas including within this judicial district. *See Litecubes, LLC v. Northern Light Products, Inc.*, 523 F.3d 1353, 1369-70 (Fed. Cir. 2008) ("[T]he sale [for purposes of § 271] occurred at the location of the buyer."); *see also Semcon IP Inc. v. Kyocera Corp.*, No. 2:18-cv-00197-JRG, 2019 WL 1979930, at *3 (E.D. Tex. May 3, 2019) (denying accused infringer's motion to dismiss because plaintiff sufficiently plead that purchases of infringing products outside of the United States for importation into and sales to end users in the U.S. may constitute an offer to sell under § 271(a)). For example, Defendant's phones, laptops, and computers are sold to end users by the U.S.-based subsidiaries, distributors, and customers, including, but not limited to, ACI, online and at retail stores located throughout the Eastern District of Texas.

24. On information and belief, ASUSTeK has placed and continues to place infringing products and/or products that practice infringing processes into the stream of commerce via established distribution channels comprising at least subsidiaries and distributors, such as ACI, and customers such as AT&T, Verizon, Best Buy, Walmart, and Amazon, with the knowledge and/or intent that those products are and/or will be imported, used, offered for sale, sold, and continue to be sold in the United States and Texas, including in this judicial district. As a result, ASUSTeK has, vicariously through and/or in concert with its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers, placed the Accused Products into the stream of commerce via established distribution channels with the knowledge and/or intent that those products were sold and continue to be sold in the United States and Texas, including in this judicial district.

25. In the alternative, the Court has personal jurisdiction over Defendant under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise

under federal law, Defendant is not subject to the jurisdiction of the courts of general jurisdiction of any state, and exercising jurisdiction over Defendant is consistent with the U.S. Constitution.

26. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391 because, among other things, Defendant is not a resident in the United States, and thus may be sued in any judicial district, including this one, pursuant to 28 U.S.C. § 1391(c)(3). *See In re HTC Corp.*, 889 F.3d 1349, 1357 (Fed. Cir. 2018) ("The Court's recent decision in *TC Heartland* does not alter" the alien-venue rule.).

COUNT I

(INFRINGEMENT OF U.S. PATENT NO. 6,925,097)

27. Plaintiff incorporates paragraphs 1 through 26 herein by reference.

28. SPV is the assignee of the '097 patent, entitled "Decoder, decoding method, multiplexer, and multiplexing method," with ownership of all substantial rights in the '097 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

29. The '097 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '097 patent issued from U.S. Patent Application No. 09/820,311.

30. ASUSTeK has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '097 patent in this judicial district and elsewhere in Texas and the United States.

31. ASUSTeK designs, develops, manufactures, assembles and markets mobile phones, laptops, computers, and other devices configured to encode and/or decode H.265 video.

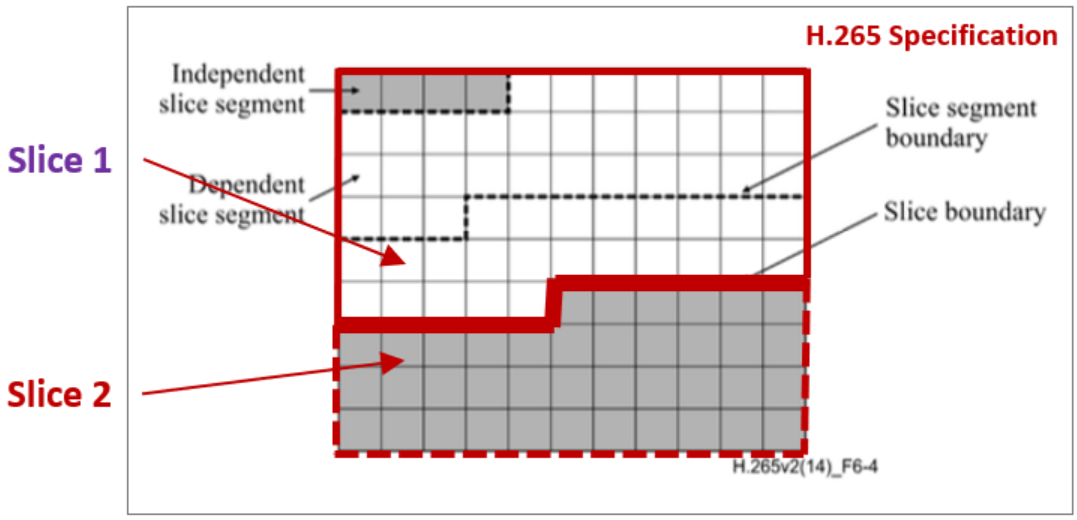
32. ASUSTeK directly infringes the '097 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and

processes, and/or products containing the same that incorporate the fundamental technologies covered by the '097 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, on information and belief, ASUSTeK sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '097 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, ASUSTeK directly infringes the '097 patent through its direct involvement in the activities of its subsidiaries, including ACI, including by selling and offering for sale the Accused Products directly to such subsidiaries and importing the Accused Products into the United States for such subsidiaries. Such subsidiaries conduct activities that constitute direct infringement of the '097 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. On information and belief, ASUSTeK offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, ASUSTeK is vicariously liable for this infringing conduct of its U.S.-based sales subsidiaries, e.g., ACI, (under both the alter ego and agency theories) because, as an example and on information and belief, ASUSTeK and ACI are essentially the same company, and ASUSTeK has the right and ability to control its subsidiaries infringing acts and receives a direct financial benefit from the infringement of its U.S.-based sales subsidiaries, e.g., ACI.

33. For example, ASUSTeK infringes claim 4 of the '097 patent via the Accused Products. The Accused Products perform the decoding method for carrying out a decoding process for a multiplexed stream which is obtained by multiplexing plural streams in parallel for each of the streams included in the multiplexed stream" of claim 4. For example, the Accused Products implement a decoding method to carry out a H.265/HEVC decoding process using multi-level slice fragmentation feature. The decoding process decodes input image bitstream(s) including picture frames, each individually a multiplexed stream that is obtained by encoding multiple smaller units (plural streams) that comprise the entire bitstream including its picture frames.

34. The Accused Products perform "separating the multiplexed stream into plural streams." For example, the HEVC decoding process involves dividing an encoded input bitstream including individual picture frames, each of which is a multiplexed stream, into multiple slices ("plural streams").

35. The Accused Products perform "selecting one of the plural separated streams such that a target of a decoding process is converted from one stream to another stream." For example, the HEVC decoding process involves decoding each of the slices in an input picture frame one by one until all slice segments in a slice are decoded, ensuring that the entire slice is decoded before moving to the following slice:



In the example above, one of the plural separated streams, slice 1, is selected to be decoded first, followed by slice 2 in the decoding process, thereby switching the decoding order from slice 1 to slice 2 ("such that a target of a decoding process converted from one stream to another stream").

36. The Accused Products perform "decoding one of the plural separated streams output by the stream selection process." For example, the selection process from the above example selects slice 1 which is then decoded. The entire slice (all slice segments) is decoded in the decoding process.

37. The Accused Products perform "wherein said selecting comprises detecting a stream switchable position in a stream being subjected to said decoding, at which position said decoding can be interrupted, and performing said selecting such that said decoding for the stream which is being processed is interrupted at the stream switchable position." For example, HEVC decoding process detects the end of the last slice segment in a slice, which is a stream switchable position where the decoding can be interrupted. After the decoding is interrupted, decoding for the following slice (slice 2 in the example above) begins.

38. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

39. At a minimum, ASUSTeK has known of the ’097 patent at least as early as the filing date of the complaint. In addition, ASUSTeK has known about the ’097 patent since at least September 24, 2021, when ASUSTeK was provided notice of its infringement via a data room accessible to ASUSTeK. Further, ASUSTeK has known about the ’097 patent since prior to the filing of the complaint when it received correspondence, including at least on February 2, 2022, from SPV alerting ASUSTeK to its infringement. Moreover, ASUSTeK has been on notice of the ’097 patent as a result of previous lawsuits filed by the Plaintiff against competitors of ASUSTeK and other relevant market participants, such as TCL, Hisense, and Acer.

40. On information and belief, since at least the above-mentioned date when ASUSTeK was on notice of its infringement, ASUSTeK has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the ’097 patent to directly infringe one or more claims of the ’097 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, ASUSTeK does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’097 patent. ASUSTeK intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features

related to H.265 decoding in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

41. On information and belief, despite having knowledge of the '097 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '097 patent, ASUSTeK has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. ASUSTeK's infringing activities relative to the '097 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

42. SPV has been damaged as a result of ASUSTeK's infringing conduct described in this Count. ASUSTeK is, thus, liable to SPV in an amount that adequately compensates SPV for ASUSTeK's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II

(INFRINGEMENT OF U.S. PATENT NO. 7,685,498)

43. Plaintiff incorporates paragraphs 1 through 42 herein by reference.

44. SPV is the assignee of the '498 patent, entitled "Digital broadcasting system and digital broadcast transmission and reception method," with ownership of all substantial rights in the '498 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

45. The '498 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '498 patent issued from U.S. Patent Application No. 10/586,438.

46. ASUSTeK has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '498 patent in this judicial district and elsewhere in Texas and the United States.

47. ASUSTeK designs, develops, manufactures, assembles and markets mobile phones, laptops, computers, and other devices configured to encode and/or decode H.265 video.

48. ASUSTeK directly infringes the '498 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '498 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, on information and belief, ASUSTeK sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '498 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, ASUSTeK directly infringes the '498 patent through its direct involvement in the activities of its subsidiaries, including ACI, including by selling and offering for sale the Accused Products directly to such subsidiaries and importing the Accused Products into the United States for such subsidiaries. Such subsidiaries conduct activities that constitute direct infringement of the '498 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. On information and belief, ASUSTeK offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries,

importers, and/or consumers. Further, ASUSTeK is vicariously liable for this infringing conduct of its U.S.-based sales subsidiaries, e.g., ACI, (under both the alter ego and agency theories) because, as an example and on information and belief, ASUSTeK and ACI are essentially the same company, and ASUSTeK has the right and ability to control its subsidiaries infringing acts and receives a direct financial benefit from the infringement of its U.S.-based sales subsidiaries, e.g., ACI.

49. For example, ASUSTeK infringes claim 10 of the '498 patent via the Accused Products. The Accused Products comprise the "reception apparatus for use in a digital broadcasting system for transmitting and receiving, via a network, a broadcast stream created from a broadcast source, the broadcast source including image and audio data and being used for broadcasting" of claim 10. For example, the Accused Products are each a reception apparatus that receives digital HEVC-encoded content streams of video and audio, such as HEVC encoded live broadcast content.

50. The Accused Products each comprise "a receiving unit operable to receive the broadcast stream via the network." For example, the Accused Products are configured to receive the H.265 encoded broadcast stream via the internet.

51. The Accused Products each comprise "a decoding unit operable to extract, from the received broadcast stream, at least one of a first layer code and a second layer code, the first layer code and the second layer code (i) being generated from the broadcast source coded based on a characteristic of the broadcast source, and (ii) respectively being for reproduction of the broadcast source." For example, the Accused Products have H.265 decoding units that are configured to extract coded NAL Unit Types (nal_unit_type) from the received stream. The NAL Unit Types correspond to the first layer code and second layer code. The NAL Unit Type is generated during

the coding process at the broadcast source and coded based on the broadcast source (i.e., VCL NAL Units contain picture data and non-VCL NAL Units contain supplemental decoding information). The NAL Unit Type identifies whether a NAL Unit is a Video Coding Layer NAL Unit or a non-VCL NAL Unit. The codes are used for the decoding process.

52. The Accused Products each comprise "a reproducing unit operable to reproduce the broadcast source using the at least one of the first layer code and the second layer code extracted by said decoding unit." For example, the Accused Products have a unit that outputs a signal that is a reproduction of the source media. The devices use the NAL Unit Types to reconstruct the media. For example the NAL Unit Types govern the picture output order. The Accused Products are configured to display the reproduced broadcast source.

53. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

54. At a minimum, ASUSTeK has known of the '498 patent at least as early as the filing date of the complaint. In addition, ASUSTeK has known about the '498 patent since at least September 24, 2021, when ASUSTeK was provided notice of its infringement via a data room accessible to ASUSTeK. Further, ASUSTeK has known about the '498 patent since prior to the filing of the complaint when it received correspondence, including at least on February 2, 2022, from SPV alerting ASUSTeK to its infringement. Moreover, ASUSTeK has been on notice of the '498 patent as a result of previous lawsuits filed by the Plaintiff against competitors of ASUSTeK and other relevant market participants, such as TCL, Hisense, and Acer.

55. On information and belief, since at least the above-mentioned date when ASUSTeK was on notice of its infringement, ASUSTeK has actively induced, under U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the

Accused Products that include or are made using all of the limitations of one or more claims of the '498 patent to directly infringe one or more claims of the '498 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, ASUSTeK does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '498 patent. ASUSTeK intends to cause, and has taken affirmative steps to induce infringement by distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to H.265 decoding in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

56. On information and belief, despite having knowledge of the '498 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '498 patent, ASUSTeK has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. ASUSTeK's infringing activities relative to the '498 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

57. SPV has been damaged as a result of ASUSTeK's infringing conduct described in this Count. ASUSTeK is, thus, liable to SPV in an amount that adequately compensates SPV for

ASUSTeK's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III

(INFRINGEMENT OF U.S. PATENT NO. 8,019,169)

58. Plaintiff incorporates paragraphs 1 through 57 herein by reference.

59. SPV is the assignee of the '169 patent, entitled "Image coding apparatus, image decoding apparatus, image processing apparatus and methods thereof," with ownership of all substantial rights in the '169 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

60. The '169 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '169 patent issued from U.S. Patent Application No. 12/014,895.

61. ASUSTeK has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '169 patent in this judicial district and elsewhere in Texas and the United States.

62. ASUSTeK designs, develops, manufactures, assembles and markets mobile phones, laptops, computers, and other devices configured to encode and/or decode H.265 video.

63. ASUSTeK directly infringes the '169 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '169 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, on information and belief, ASUSTeK sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that

it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '169 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, ASUSTeK directly infringes the '169 patent through its direct involvement in the activities of its subsidiaries, including ACI, including by selling and offering for sale the Accused Products directly to such subsidiaries and importing the Accused Products into the United States for such subsidiaries. Such subsidiaries conduct activities that constitute direct infringement of the '169 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. On information and belief, ASUSTeK offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, ASUSTeK is vicariously liable for this infringing conduct of its U.S.-based sales subsidiaries, e.g., ACI, (under both the alter ego and agency theories) because, as an example and on information and belief, ASUSTeK and ACI are essentially the same company, and ASUSTeK has the right and ability to control its subsidiaries infringing acts and receives a direct financial benefit from the infringement of its U.S.-based sales subsidiaries, e.g., ACI.

64. For example, ASUSTeK infringes claim 21 of the '169 patent via the Accused Products. The Accused Products perform the "image decoding method" of claim 21. The Accused Products implement a decoding method to carry out a H.265/HEVC decoding process.

65. The Accused Products perform "acquiring a bit stream and additional information which indicates a first still image." For example, in the HEVC decoding process a decoder acquires a bit stream and additional information by receiving an input bitstream and extracting a sub-

bitstream (additional information) identified as BitstreamToDecode that indicates a current picture (first still image) via the variable CurrPic. The ITU-T H.265 Standard provides support for this:

8 Decoding process

8.1 General decoding process

8.1.1 General

Input to this process is a bitstream. Output of this process is a list of decoded pictures.

sub-bitstream extraction process: A specified process by which *NAL units* in a *bitstream* that do not belong to a target set, determined by a target highest TemporalId and a target *layer identifier list*, are removed from the *bitstream*, with the output sub-bitstream consisting of the NAL units in the *bitstream* that belong to the target set.

F.8.1.3 Common decoding process for a coded picture

The decoding processes specified in the remainder of this clause apply to each coded picture, referred to as the current picture and denoted by the variable CurrPic, in BitstreamToDecode.

66. The Accused Products perform "acquiring a second still image indicated in the additional information." For example, in the HEVC decoding process, the decoder acquires a reference picture (second still image) by selecting a reference picture from a reference picture list, which is included in the sub-bitstream (additional information). The ITU-T H.265 Standard provides support for this:

8.3.2 Decoding process for reference picture set

This process is invoked once per picture, after decoding of a slice header but prior to the decoding of any coding unit and prior to the decoding process for reference picture list construction for the slice as specified in clause 8.3.4. This process may result in one or more reference pictures in the DPB being marked as "unused for reference" or "used for long-term reference".

NOTE 1 – The RPS is an absolute description of the reference pictures used in the decoding process of the current and future coded pictures. The RPS signalling is explicit in the sense that all reference pictures included in the RPS are listed explicitly.

8.3.4 Decoding process for reference picture lists construction

This process is invoked at the beginning of the decoding process for each P or B slice.

Reference pictures are addressed through reference indices as specified in clause 8.5.3.3.2. A reference index is an index into a reference picture list. When decoding a P slice, there is a single reference picture list RefPicList0. When decoding a B slice, there is a second independent reference picture list RefPicList1 in addition to RefPicList0.

At the beginning of the decoding process for each slice, the reference picture lists RefPicList0 and, for B slices, RefPicList1 are derived.

8.5.3.3.2 Reference picture selection process

Input to this process is a reference index refIdxLX.

Output of this process is a reference picture consisting of a two-dimensional array of luma samples $refPicLX_L$ and, when ChromaArrayType is not equal to 0, two two-dimensional arrays of chroma samples $refPicLX_{Cb}$ and $refPicLX_{Cr}$.

The output reference picture RefPicListX[refIdxLX] consists of a pic_width_in_luma_samples by pic_height_in_luma_samples array of luma samples $refPicLX_L$ and, when ChromaArrayType is not equal to 0, two PicWidthInSamplesC by PicHeightInSamplesC arrays of chroma samples $refPicLX_{Cb}$ and $refPicLX_{Cr}$.

The reference picture sample arrays $refPicLX_L$, $refPicLX_{Cb}$ and $refPicLX_{Cr}$ correspond to decoded sample arrays S_L, S_{Cb} and S_{Cr} derived in clause 8.7 for a previously-decoded picture.

67. The Accused Products perform "generating a predictive image for the first image using the second still image as a reference image." For example, in the inter prediction processes included in the H.265 decoding process, the predictive picture is created from the reference picture. The output of the inter prediction decoding is a modified reconstructed picture before deblocking filtering, which is a predictive image. The ITU-T H.265 Standard provides support for this:

3.69 **inter prediction**: A *prediction* derived in a manner that is dependent on data elements (e.g., sample values or motion vectors) of one or more *reference pictures*.

NOTE – A prediction from a reference picture that is the current picture itself is also inter prediction.

8.5 Decoding process for coding units coded in inter prediction mode

8.5.1 General decoding process for coding units coded in inter prediction mode

Inputs to this process are:

- a luma location (xCb, yCb) specifying the top-left sample of the current luma coding block relative to the top-left luma sample of the current picture,
- a variable log2CbSize specifying the size of the current coding block.

Output of this process is a modified reconstructed picture before deblocking filtering.

8.5.2 Inter prediction process

This process is invoked when decoding coding unit whose CuPredMode[xCb][yCb] is not equal to MODE_INTRA.

Inputs to this process are:

- a luma location (xCb, yCb) specifying the top-left sample of the current luma coding block relative to the top-left luma sample of the current picture,
- a variable log2CbSize specifying the size of the current luma coding block.

Outputs of this process are:

- an $(nCbS_L)x(nCbS_L)$ array $predSamples_L$ of luma prediction samples, where $nCbS_L$ is derived as specified below,
- when ChromaArrayType is not equal to 0, an $(nCbSw_C)x(nCbSh_C)$ array $predSamples_{Cb}$ of chroma prediction samples for the component Cb, where $nCbSw_C$ and $nCbSh_C$ are derived as specified below,
- when ChromaArrayType is not equal to 0, an $(nCbSw_C)x(nCbSh_C)$ array $predSamples_{Cr}$ of chroma prediction samples for the component Cr, where $nCbSw_C$ and $nCbSh_C$ are derived as specified below.

68. The Accused Products perform "adding prediction residual obtained from the bit stream indicating the first image and the predictive image to obtain the first still image." For example, in the HEVC decoding process, arrays of prediction residual samples obtained from the bit stream, at a location where the additional information BitstreamToDecode indicating the first still image was extracted, are added to the predictive image (as array of samples predicted for the first still image) to generate the first still image. The ITU-T H.265 Standard provides support for this:

The decoding process for coding units coded in inter prediction mode consists of the following ordered steps:

1. The inter prediction process as specified in clause 8.5.2 is invoked with the luma location (xCb, yCb) and the luma coding block size log2CbSize as inputs, and the outputs are the array $predSamples_L$ and, when ChromaArrayType is not equal to 0, the arrays $predSamples_{Cb}$ and $predSamples_{Cr}$.
2. The decoding process for the residual signal of coding units coded in inter prediction mode specified in clause 8.5.4 is invoked with the luma location (xCb, yCb) and the luma coding block size log2CbSize as inputs, and the outputs are the array $resSamples_L$ and, when ChromaArrayType is not equal to 0, the arrays $resSamples_{Cb}$ and $resSamples_{Cr}$.

8.6.7 Picture construction process prior to in-loop filter process

Inputs to this process are:

- a location (xCurr, yCurr) specifying the top-left sample of the current block relative to the top-left sample of the current picture component,
- the variables nCurrSw and nCurrSh specifying the width and height, respectively, of the current block,
- a variable cIdx specifying the colour component of the current block,
- an (nCurrSw)x(nCurrSh) array predSamples specifying the predicted samples of the current block,
- an (nCurrSw)x(nCurrSh) array resSamples specifying the residual samples of the current block.

Depending on the value of the colour component cIdx, the following assignments are made:

- If cIdx is equal to 0, recSamples corresponds to the reconstructed picture sample array S_L and the function clipCidx1 corresponds to $Clip1_Y$.
- Otherwise, if cIdx is equal to 1, recSamples corresponds to the reconstructed chroma sample array S_{Cb} and the function clipCidx1 corresponds to $Clip1_C$.
- Otherwise (cIdx is equal to 2), recSamples corresponds to the reconstructed chroma sample array S_{Cr} and the function clipCidx1 corresponds to $Clip1_C$.

The (nCurrSw)x(nCurrSh) block of the reconstructed sample array recSamples at location (xCurr, yCurr) is derived as follows:

$$recSamples[xCurr + i][yCurr + j] = clipCidx1(predSamples[i][j] + resSamples[i][j]) \quad (8\text{-}327)$$

with $i = 0..nCurrSw - 1$, $j = 0..nCurrSh - 1$

69. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

70. At a minimum, ASUSTeK has known of the '169 patent at least as early as the filing date of the complaint. In addition, ASUSTeK has known about the '169 patent since at least August 29, 2019, when ASUSTeK was given access to a data room providing notice of its infringement. In addition, ASUSTeK has known about the '169 patent since at least July 17, 2020, when ASUSTeK was provided further notice of its infringement. Further, ASUSTeK has known about the '169 patent since prior to the filing of the complaint when it received correspondence, including at least on February 2, 2022, from SPV alerting ASUSTeK to its infringement. Moreover, ASUSTeK has been on notice of the '169 patent as a result of previous lawsuits filed

by the Plaintiff against competitors of ASUSTeK and other relevant market participants, such as TCL, Hisense, and Acer.

71. On information and belief, since at least the above-mentioned date when ASUSTeK was on notice of its infringement, ASUSTeK has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '169 patent to directly infringe one or more claims of the '169 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, ASUSTeK does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '169 patent. ASUSTeK intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to H.265 decoding in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

72. On information and belief, despite having knowledge of the '169 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '169 patent, ASUSTeK has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. ASUSTeK's infringing activities relative to the '169 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful,

flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

73. SPV has been damaged as a result of ASUSTeK's infringing conduct described in this Count. ASUSTeK is, thus, liable to SPV in an amount that adequately compensates SPV for ASUSTeK's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT IV

(INFRINGEMENT OF U.S. PATENT NO. 8,737,476)

74. Plaintiff incorporates paragraphs 1 through 73 herein by reference.

75. SPV is the assignee of the '476 patent, entitled "Image decoding device, image decoding method, integrated circuit, and program for performing parallel decoding of coded image data," with ownership of all substantial rights in the '476 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

76. The '476 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '476 patent issued from U.S. Patent Application No. 12/812,134.

77. ASUSTeK has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '476 patent in this judicial district and elsewhere in Texas and the United States.

78. ASUSTeK designs, develops, manufactures, assembles and markets mobile phones, laptops, computers, and other devices configured to decode H.265 video.

79. ASUSTeK directly infringes the '476 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and

processes, and/or products containing the same that incorporate the fundamental technologies covered by the '476 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, on information and belief, ASUSTeK sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '476 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, ASUSTeK directly infringes the '476 patent through its direct involvement in the activities of its subsidiaries, including ACI, including by selling and offering for sale the Accused Products directly to such subsidiaries and importing the Accused Products into the United States for such subsidiaries. Such subsidiaries conduct activities that constitute direct infringement of the '476 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. On information and belief, ASUSTeK offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, ASUSTeK is vicariously liable for this infringing conduct of its U.S.-based sales subsidiaries, e.g., ACI, (under both the alter ego and agency theories) because, as an example and on information and belief, ASUSTeK and ACI are essentially the same company, and ASUSTeK has the right and ability to control its subsidiaries infringing acts and receives a direct financial benefit from the infringement of its U.S.-based sales subsidiaries, e.g., ACI.

80. For example, ASUSTeK infringes claim 14 of the '476 patent via the Accused Products. The Accused Products perform the "image decoding method of decoding coded image data on a block-by-block basis, the coded image data being resulted from coding, on a block-by-block basis, of image data partitioned into blocks each of which has a predetermined number of pixels" of claim 14. For example, the Accused Products include an H.265 decoder that receives a coded image and decodes it on a block-by-block basis. The coded image resulted from coding, on a block-by-block basis, of image data partitioned into blocks, known as CTUs. The CTUs have a predetermined number of pixels (e.g., 64 x 64 pixels).

81. The Accused Products perform "pre-decoding, on a block-by-block basis, reference information indicating a number of reference images to be referred to on a block-by-block basis for decoding the coded image data." For example, as part of processing H.265 encoded video, the Accused Products use "slice decoding." The slice decoding process includes obtaining reference information that indicates a number of reference images for decoding an image slice prior to decoding (i.e. pre-decoding) the current image to be decoded on a block-by-block basis. The Accused Products receive information from the slice header that include RPS (Reference Picture Set) information. The ITU-T H.265 Standard provides support for this:

Picture	RPS {reference picture, used by current picture}
I_0	–
P_1	$\{I_0, 1\}$
B_2	$\{I_0, 1\}, \{P_1, 1\}$
B_3	$\{I_0, 1\}, \{P_1, 0\}, \{B_2, 1\}$
B_4	$\{P_1, 1\}, \{B_2, 1\}$

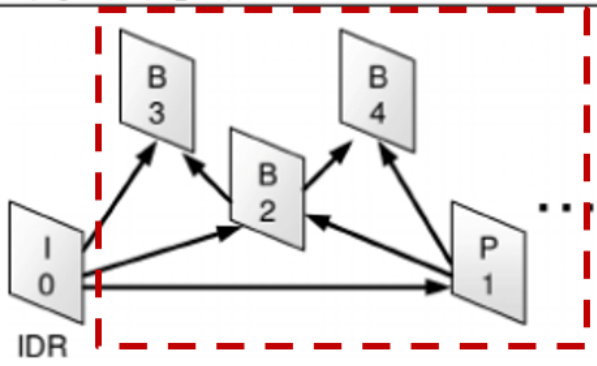


Fig. 7. Coding structure for RPS example.

82. The RPS information contains reference information indicating number of images to be referred to for decoding an image slice (e.g. in the example above, images I0 and P1 are the reference images used to decode image B2). For example, RPS contains syntax and index structures that refer to one or more reference pictures and how those reference pictures are to be used to decode image slices. Further, the RPS information also contains reference information indicating number of images to be referred to for decoding an image slice (e.g. in the example above, the number of reference images for Picture B2 is two). The slice header containing the status of the DPB (Decoded Picture Buffer) informs the Accused Product's H.265 decoder of the number of reference images to be referred to for decoding an image slice (e.g., image B2 above requires two reference images to be decoded).

83. The Accused Products perform "calculating, on a block-by-block basis using the reference information, a predictive data amount of a reference image to be read out on a block-by-block basis from a storage unit for decoding the coded image data, the storage unit storing data of

at least one reference image to be referred to for decoding the coded image data." For example, in H.265/HEVC, the DPB (Decoded Picture Buffer) is a storage unit that stores RPS information, including the reference images to be used for decoding an image slice. In the example above, the DPB stores three reference images (I0, P1, B2) that are used in the example's HEVC decoding process. The Accused Products use the RPS reference information to calculate the amount of reference image data required to decode an image slice. More specifically, the H.265 decoder determines the total amount of reference image data (predictive data amount) required to decode an image slice. For example, for 'n' number of reference images the total predictive data amount is 'n' times the data amount of one reference image. In the example above, to decode the B2 image the H.265 decoder calculates that a predictive data amount associated with two reference images (I0 and P1) is to be read out from the DPB since two reference images are used to decode the image B2.

84. The Accused Products perform "determining, using the predictive data amount calculated, multiple blocks in the coded image data which are to be decoded in parallel, in such a manner as to reduce variation in amounts of data read out from the storage unit." For example, the Accused Products use the predictive data (referenced above) and the reference images to determine the blocks (CTUs) that are to be decoded in parallel in the current image to be decoded. For example, as shown above, the H.265 decoder determines the multiple blocks in image B2 to be decoded in parallel using exemplary reference images I0 and P1.

85. The Accused Products perform "decoding in parallel the determined multiple blocks in the coded image data." For example, the Accused Products decode the determined multiple blocks in parallel. For example, as shown above, multiple blocks in exemplary image B2

are decoded in parallel while the exemplary H.265 decoder uses images I0 and P1 as reference images to decode the same.

86. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

87. At a minimum, ASUSTeK has known of the '476 patent at least as early as the filing date of the complaint. In addition, ASUSTeK has known about the '476 patent since at least September 24, 2021, when ASUSTeK was provided notice of its infringement via a data room accessible to ASUSTeK. Further, ASUSTeK has known about the '476 patent since prior to the filing of the complaint when it received correspondence, including at least on February 2, 2022, from SPV alerting ASUSTeK to its infringement. Moreover, ASUSTeK has been on notice of the '476 patent as a result of previous lawsuits filed by the Plaintiff against competitors of ASUSTeK and other relevant market participants, such as TCL, Hisense, and Acer.

88. On information and belief, since at least the above-mentioned date when ASUSTeK was on notice of its infringement, ASUSTeK has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '476 patent to directly infringe one or more claims of the '476 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, ASUSTeK does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '476 patent. ASUSTeK intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the

Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to H.265 decoding in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

89. On information and belief, despite having knowledge of the '476 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '476 patent, ASUSTeK has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. ASUSTeK's infringing activities relative to the '476 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

90. SPV has been damaged as a result of ASUSTeK's infringing conduct described in this Count. ASUSTeK is, thus, liable to SPV in an amount that adequately compensates SPV for ASUSTeK's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT V

(INFRINGEMENT OF U.S. PATENT NO. 8,971,401)

91. Plaintiff incorporates paragraphs 1 through 90 herein by reference.

92. SPV is the assignee of the '401 patent, entitled "Image decoding device" with ownership of all substantial rights in the '401 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

93. The ’401 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The ’401 patent issued from U.S. Patent Application No. 13/246,503.

94. ASUSTeK has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the ’401 patent in this judicial district and elsewhere in Texas and the United States.

95. ASUSTeK designs, develops, manufactures, assembles and markets mobile phones, laptops, computers, and other devices configured to decode H.265 video.

96. ASUSTeK directly infringes the ’401 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the ’401 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, on information and belief, ASUSTeK sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the ’401 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, ASUSTeK directly infringes the ’401 patent through its direct involvement in the activities of its subsidiaries, including ACI, including by selling and offering for sale the Accused Products directly to such subsidiaries and importing the Accused Products into the United States for such subsidiaries. Such subsidiaries conduct activities that constitute direct infringement of the

'401 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. On information and belief, ASUSTeK offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, ASUSTeK is vicariously liable for this infringing conduct of its U.S.-based sales subsidiaries, e.g., ACI, (under both the alter ego and agency theories) because, as an example and on information and belief, ASUSTeK and ACI are essentially the same company, and ASUSTeK has the right and ability to control its subsidiaries infringing acts and receives a direct financial benefit from the infringement of its U.S.-based sales subsidiaries, e.g., ACI.

97. For example, ASUSTeK infringes claim 1 of the '401 patent via the Accused Products. The Accused Products comprise the "image decoding device for processing an input bit stream containing encoded data obtained by encoding a moving picture using intra-frame prediction, where each of the macroblocks of the moving picture includes a plurality of prediction units for the intra-frame prediction" of claim 1. For example, the Accused Products are configured to decode H.265 encoded video that comprises input bitstreams encoded using intra-frame prediction. The CTUs (macroblocks) of the video frames include a plurality of Prediction Units (PUs) for the intra-prediction.

98. The Accused Products comprise "a stream divider configured to divide the input bit stream into a plurality of sub-streams." For example, the Accused Products are configured to use the CABAC parsing process. In the CABAC parsing process, a stream divider is configured to divide the input bitstream into slices (sub-streams) to be decoded. The sub-streams comprise streams of color components (including prediction data and transform coefficients) within individual picture blocks undergoing H.265 entropy decoding.

99. The Accused Products comprise "a plurality of image decoders each configured to decode the corresponding one of the plurality of sub-streams, thereby outputting images." For example, the Accused Products are believed to be configured to use a plurality of decoders to each decode a substream (e.g. via use of a multicore decoder). The plurality of image decoders may comprise a plurality of physical and/or logical cores/threads/engines/units.

100. The Accused Products are configured such that "the stream divider divides the encoded data corresponding to one of the macroblocks into groups each made up of at least one of the prediction units and outputs the sub-streams so that the groups are included in different ones of the sub-streams, each of the sub-streams includes prediction units from different macroblocks."

101. The H.265 encoded data corresponding to one of the CTUs (macroblocks) is divided into a plurality of coding blocks or groups, each group including at least one of the Prediction Blocks (a PU comprises PBs from each color plane). The luma CBs, containing luma PBs, are included in the respective luma sub stream. The chroma CBs, containing chroma PBs, are included in the respective chroma sub streams. The three color plane sub streams (including prediction data and transform coefficients) comprising each CTU row contain Prediction Blocks from the different CTUs in the CTU rows.

102. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

103. At a minimum, ASUSTeK has known of the '401 patent at least as early as the filing date of the complaint. In addition, ASUSTeK has known about the '401 patent since at least August 29, 2019, when ASUSTeK was given access to a data room providing notice of its infringement. Further, ASUSTeK has known about the '401 patent since at least July 17, 2020, when ASUSTeK was given further notice of its infringement. Further, ASUSTeK has known about

the ’401 patent since prior to the filing of the complaint when it received correspondence, including at least on February 2, 2022, from SPV alerting ASUSTeK to its infringement. Moreover, ASUSTeK has been on notice of the ’401 patent as a result of previous lawsuits filed by the Plaintiff against competitors of ASUSTeK and other relevant market participants, such as TCL, Hisense, and Acer.

104. On information and belief, since at least the above-mentioned date when ASUSTeK was on notice of its infringement, ASUSTeK has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the ’401 patent to directly infringe one or more claims of the ’401 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, ASUSTeK does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’401 patent. ASUSTeK intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to H.265 decoding in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

105. On information and belief, despite having knowledge of the ’401 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’401 patent,

ASUSTeK has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. ASUSTeK's infringing activities relative to the '401 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

106. SPV has been damaged as a result of ASUSTeK's infringing conduct described in this Count. ASUSTeK is, thus, liable to SPV in an amount that adequately compensates SPV for ASUSTeK's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VI

(INFRINGEMENT OF U.S. PATENT NO. 9,042,457)

107. Plaintiff incorporates paragraphs 1 through 106 herein by reference.

108. SPV is the assignee of the '457 patent, entitled "Image Decoding Apparatus and Image Coding Apparatus with Parallel Decoding," with ownership of all substantial rights in the '457 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

109. The '457 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '457 patent issued from U.S. Patent Application No. 12/673,408.

110. ASUSTeK has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '457 patent in this judicial district and elsewhere in Texas and the United States.

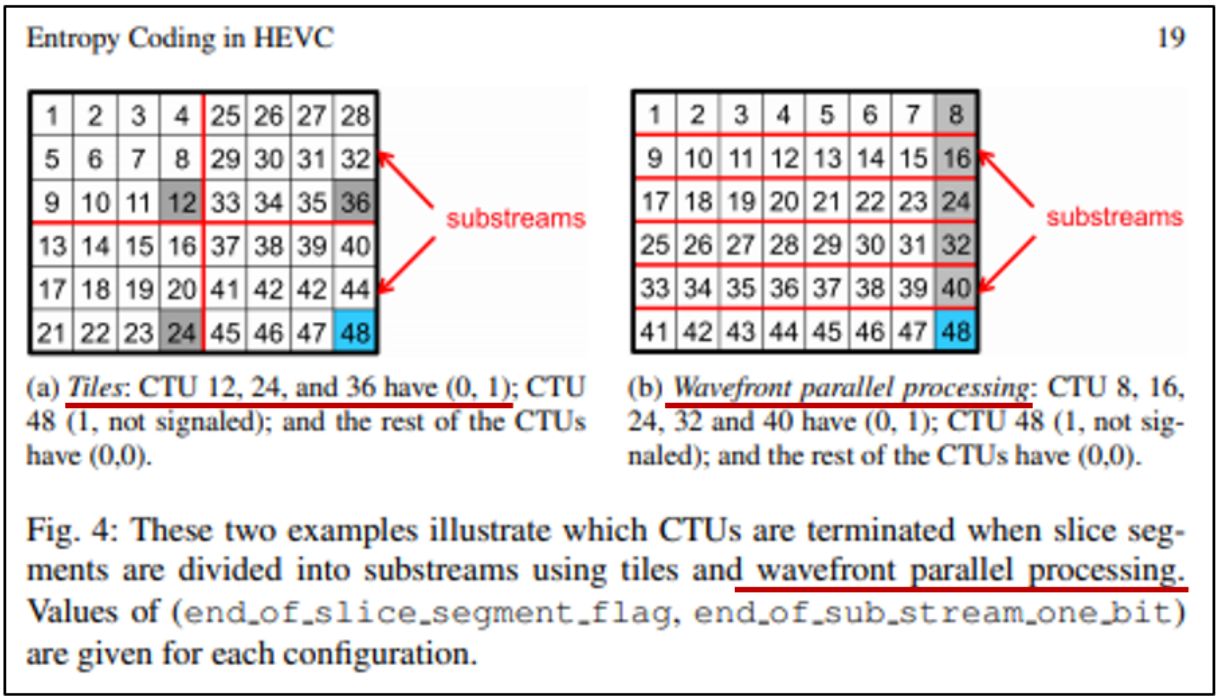
111. ASUSTeK designs, develops, manufactures, assembles and markets mobile phones, laptops, computers, and other devices configured to decode H.265 video.

112. ASUSTeK directly infringes the '457 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '457 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, on information and belief, ASUSTeK sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '457 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, ASUSTeK directly infringes the '457 patent through its direct involvement in the activities of its subsidiaries, including ACI, including by selling and offering for sale the Accused Products directly to such subsidiaries and importing the Accused Products into the United States for such subsidiaries. Such subsidiaries conduct activities that constitute direct infringement of the '457 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. On information and belief, ASUSTeK offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, ASUSTeK is vicariously liable for this infringing conduct of its U.S.-based sales subsidiaries, e.g., ACI, (under both the alter ego and agency theories) because, as an example and on information and belief, ASUSTeK and ACI are essentially the same

company, and ASUSTeK has the right and ability to control its subsidiaries infringing acts and receives a direct financial benefit from the infringement of its U.S.-based sales subsidiaries, e.g., ACI.

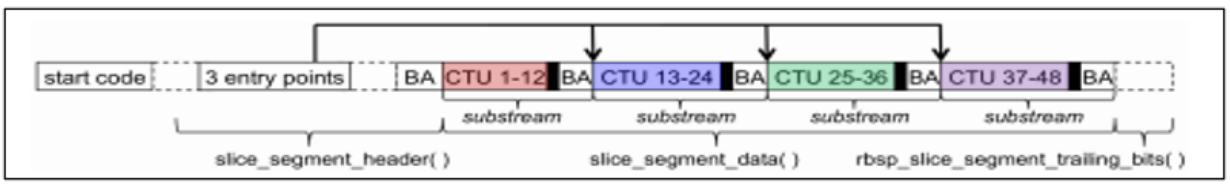
113. For example, ASUSTeK infringes claim 7 of the '457 patent via the Accused Products. The Accused Products perform the "image decoding method for decoding, using a processor, a coded stream generated by coding, on a block-by-block basis, a picture including blocks" of claim 7. For example, the Accused Products include a video decoder that is configured to decode H.265 encoded data. Each of the Accused Products includes a processor for executing instructions to operate the full functionality of the product, including H.265 decoding functionality. The Accused Products use a processor to decode a coded stream that resulted from coding, on a block-by-block basis, a picture including blocks, known as CTUs.

114. The Accused Products use the processor for "performing, on a block group-by-block group basis, variable length decoding, and generating block decoding information using a result of the variable length decoding for each of a plurality of block groups which (i) contain blocks, (ii) are different from each other, and (iii) are included in the coded stream, the block decoding information for the block group being a parameter necessary for decoding another block group from among the plurality of block groups." For example, the processor performs, on a block group-by-block group basis, variable length decoding, and generates block decoding information using a result of the variable length decoding of plurality of block groups. The source code within the Accused Products is believed to incorporate variable length decoding on a block group-by-block group basis in conformance with H.265 (e.g., predecoding the slice header provides syntax elements for subsequent decoding operations).



https://www.researchgate.net/publication/290180658_Entropy_Coding_in_HEVC

115. The processor determines the locations, within the network abstraction layer (NAL) unit, of encoded syntax elements. The encoded syntax elements point to the start point of the substreams in the bitstream, with the locations of the start points obtained as a result of the variable length decoding of the syntax elements. Thus, the block decoding information (e.g., encoded syntax elements) are generated using the result of the variable length decoding for each block group. The plurality of block groups contain blocks. Each block group (substream) contains a unique set of blocks. This is shown, for example, in the annotated image below by an encoded bitstream comprising four substreams (block groups) each comprised of a different group of CTUs.



https://www.researchgate.net/publication/290180658_Entropy_Coding_in_HEVC

116. The plurality of block groups are included in the coded stream. For example, the substreams are included in the slice segment data. The block decoding information for the block group is a parameter necessary for decoding another block group from among the plurality of block groups. For example, the block decoding information (e.g., encoded syntax elements) is necessary for decoding another substream: there is a contextual dependency between substreams.

117. The Accused Products use the processor for "decoding, on a block-by-block basis using the block decoding information generated using the result of the variable length decoding performed in said performing, each of the plurality of block groups in parallel, wherein said decoding performed on the block-by-block basis on each of the plurality of block groups in parallel includes re-executing the variable length decoding on each of the plurality of block groups on which the variable length decoding has been performed in said performing to determine a prediction mode to be performed on the block group." For example, H.265 is designed for platforms configured to perform parallel decoding of a plurality of individual substreams (block groups). The source code within the Accused Products is believed to incorporate decoding in parallel in conformance with H.265. The Accused Products support parallel processing, such as Wavefront Parallel Processing, to conform with H.265. The blocks in one of the block groups (substreams) are decoded by using the block decoding information (syntax elements). The syntax elements signal the start of each substream. Substreams are decoded in parallel on a block-by-block basis. The decoding performed on the block-by-block basis on each of the plurality of block groups in parallel includes re-executing the variable length decoding on each of the plurality of blocks groups on which the variable length decoding has been performed in said performing to determine a prediction mode to be performed on the block group. For example, the entropy decoder re-executes variable length decoding on the blocks in the block groups using the syntax data

obtained in the predecoding process. The prediction mode is dependent on the syntax elements of the current block in view of the previously decoded blocks' syntax elements. H.265 specifies that information allowing for a determination of a prediction mode to be performed on a block group is contained in the coded bitstream. The ITU-T H.265 Standard provides support for this:

Table 7-10 – Name association to prediction mode and partitioning type

CuPredMode[x0][y0]	part_mode	IntraSplitFlag	PartMode
MODE_INTRA	0	0	PART_2Nx2N
	1	1	PART_NxN
MODE_INTER	0	0	PART_2Nx2N
	1	0	PART_2NxN
	2	0	PART_Nx2N
	3	0	PART_NxN
	4	0	PART_2NxnU
	5	0	PART_2NxnD
	6	0	PART_nLx2N
	7	0	PART_nRx2N

https://www.itu.int/rec/T-REC-H.265/en p. 101

Table 8-1 – Specification of intra prediction mode and associated names

Intra prediction mode	Associated name
0	INTRA_PLANAR
1	INTRA_DC
2..34	INTRA_ANGULAR2..INTRA_ANGULAR34

https://www.itu.int/rec/T-REC-H.265/en p. 118

118. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

119. At a minimum, ASUSTeK has known of the '457 patent at least as early as the filing date of the complaint. In addition, ASUSTeK has known about the '457 patent since at least August 29, 2019, when ASUSTeK was given access to a data room providing notice of its infringement. Further ASUSTeK has known about the '457 patent since at least January 29, 2020, when ASUSTeK was provided further notice of its infringement. Further, ASUSTeK has known about the '457 patent since prior to the filing of the complaint when it received correspondence, including at least on February 2, 2022, from SPV alerting ASUSTeK to its infringement. Moreover, ASUSTeK has been on notice of the '457 patent as a result of previous lawsuits filed by the Plaintiff against competitors of ASUSTeK and other relevant market participants, such as TCL, Hisense, and Acer.

120. On information and belief, since at least the above-mentioned date when ASUSTeK was on notice of its infringement, ASUSTeK has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '457 patent to directly infringe one or more claims of the '457 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, ASUSTeK does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '457 patent. ASUSTeK intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to H.265 decoding in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

121. On information and belief, despite having knowledge of the '457 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '457 patent, ASUSTeK has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. ASUSTeK's infringing activities relative to the '457 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical

infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

122. SPV has been damaged as a result of ASUSTeK's infringing conduct described in this Count. ASUSTeK is, thus, liable to SPV in an amount that adequately compensates SPV for ASUSTeK's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VII

(INFRINGEMENT OF U.S. PATENT NO. 9,414,059)

123. Plaintiff incorporates paragraphs 1 through 122 herein by reference.

124. SPV is the assignee of the '059 patent, entitled "Image Processing Device, Image Coding Method, and Image Processing Method" with ownership of all substantial rights in the '059 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

125. The '059 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '059 patent issued from U.S. Patent Application No. 13/877,389.

126. ASUSTeK has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '059 patent in this judicial district and elsewhere in Texas and the United States.

127. ASUSTeK designs, develops, manufactures, assembles and markets mobile phones, laptops, computers, and other devices configured to decode H.265 video.

128. ASUSTeK directly infringes the '059 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies

covered by the '059 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, on information and belief, ASUSTeK sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '059 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, ASUSTeK directly infringes the '059 patent through its direct involvement in the activities of its subsidiaries, including ACI, including by selling and offering for sale the Accused Products directly to such subsidiaries and importing the Accused Products into the United States for such subsidiaries. Such subsidiaries conduct activities that constitute direct infringement of the '059 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. On information and belief, ASUSTeK offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, ASUSTeK is vicariously liable for this infringing conduct of its U.S.-based sales subsidiaries, e.g., ACI, (under both the alter ego and agency theories) because, as an example and on information and belief, ASUSTeK and ACI are essentially the same company, and ASUSTeK has the right and ability to control its subsidiaries infringing acts and receives a direct financial benefit from the infringement of its U.S.-based sales subsidiaries, e.g., ACI.

129. For example, ASUSTeK infringes claim 1 of the '059 patent via the Accused Products. The Accused Products comprise an "image processing device which performs plural first

processes, by pipelining, on a coded stream obtained by dividing an image into plural coding unit blocks according to at least two numbers of pixels and coding the image on a coding unit block-by-block basis" of claim 1. For example, each of the Accused Products supports the H.265/HEVC standard. The Accused Products process H.265/HEVC encoded video via a pipelined process. A block comprises an array of samples (individual pixel data) that is used to code an image. The coding is performed on a block-by-block basis because an image will be partitioned into multiple blocks to be coded. The blocks can be of various sizes, therefore containing at least two numbers of pixels (e.g., 8x8, 16x16, etc.).

130. The Accused Products comprise "plural first process units configured to perform, by the pipelining, the plural first processes on the coded stream by each executing one of the plural first processes." For example, the Accused Products comprise multiple first process units configured to decode the sub-streams of the coded stream by pipelining. The cores of the processor on the Accused Products can comprise separate first process units. The hardware components (e.g., processing circuitry) and/or software components (e.g., source code) within the Accused Products are believed to incorporate a functionally pipelined architecture supported by the H.265/HEVC standard. In H.265/HEVC, CTUs in different slices are decoded in a pipelined manner. The processing units handling the respective threads via pipelining comprise the plural first process units.

131. The Accused Products comprise "a control unit configured to divide or connect portions of the coded stream into plural first processing unit blocks according to a first number of pixels, each of the first processing unit blocks having the same number of pixels in the image, and control the plural first process units to cause the plural first processes to be executed for each of the first processing unit blocks." For example, the control path for the CABAC decoder in the

Accused Products serves as the control unit. The source code within the Accused Products that operates the HEVC functionality, including dividing portions of the coded stream into slices that are further partitioned into CTUs of the same size serves as the control unit. The plural first processes are executed for each of the CTUs. The syntax data of the bitstream uses entry points to indicate how to construct the substreams.

132. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

133. At a minimum, ASUSTeK has known of the '059 patent at least as early as the filing date of the complaint. In addition, ASUSTeK has known about the '059 patent since at least August 29, 2019, when ASUSTeK was given access to a data room providing notice of its infringement. Further, ASUSTeK has known about the '059 patent since at least January 29, 2020, when ASUSTeK was provided further notice of its infringement. Further, ASUSTeK has known about the '059 patent since prior to the filing of the complaint when it received correspondence, including at least on February 2, 2022, from SPV alerting ASUSTeK to its infringement. Moreover, ASUSTeK has been on notice of the '059 patent as a result of previous lawsuits filed by the Plaintiff against competitors of ASUSTeK and other relevant market participants, such as TCL, Hisense, and Acer.

134. On information and belief, since at least the above-mentioned date when ASUSTeK was on notice of its infringement, ASUSTeK has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '059 patent to directly infringe one or more claims of the '059 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-

mentioned date, ASUSTeK does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '059 patent. ASUSTeK intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to H.265 decoding in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

135. On information and belief, despite having knowledge of the '059 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '059 patent, ASUSTeK has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. ASUSTeK's infringing activities relative to the '059 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

136. SPV has been damaged as a result of ASUSTeK's infringing conduct described in this Count. ASUSTeK is, thus, liable to SPV in an amount that adequately compensates SPV for ASUSTeK's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VIII

(INFRINGEMENT OF U.S. PATENT NO. 9,667,972)

137. Plaintiff incorporates paragraphs 1 through 136 herein by reference.

138. SPV is the assignee of the '972 patent, entitled "Image Coding Device, Image Coding Method, and Image Coding Integrated Circuit" with ownership of all substantial rights in the '972 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

139. The '972 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '972 patent issued from U.S. Patent Application No. 14/555,825.

140. ASUSTeK has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '972 patent in this judicial district and elsewhere in Texas and the United States.

141. ASUSTeK designs, develops, manufactures, assembles and markets mobile phones, laptops, computers, and other devices configured to encode H.265 video.

142. ASUSTeK directly infringes the '972 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '972 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, on information and belief, ASUSTeK sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '972 patent. *See, e.g., Lake Cherokee Hard Drive*

Techs., L.L.C. v. Marvell Semiconductor, Inc., 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, ASUSTeK directly infringes the '972 patent through its direct involvement in the activities of its subsidiaries, including ACI, including by selling and offering for sale the Accused Products directly to such subsidiaries and importing the Accused Products into the United States for such subsidiaries. Such subsidiaries conduct activities that constitute direct infringement of the '972 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. On information and belief, ASUSTeK offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, ASUSTeK is vicariously liable for this infringing conduct of its U.S.-based sales subsidiaries, e.g., ACI, (under both the alter ego and agency theories) because, as an example and on information and belief, ASUSTeK and ACI are essentially the same company, and ASUSTeK has the right and ability to control its subsidiaries infringing acts and receives a direct financial benefit from the infringement of its U.S.-based sales subsidiaries, e.g., ACI.

143. For example, ASUSTeK infringes claim 5 of the '972 patent via the Accused Products. The Accused Products perform the "image encoding method that causes a programmed computer to compression-encode an image in units of blocks having a predetermined size" of claim 5. For example, the Accused Products implement an encoding method to carry out a H.265/HEVC encoding process that compresses and encodes images on a block-by-block basis, where the blocks have a predetermined size (e.g., 64 x 64 pixels). All block sizes, including the Coding Tree Units (CTUs), Coding Units (CUs), and Prediction Units (PUs) are known to the H.265 encoder.

144. For example, ASUSTeK infringes claim 5 of the '972 patent via the Accused Products. The Accused Products perform an "image encoding method having a first encoding

mode in which a motion vector of an encoding-target block is not encoded and the motion vector of the encoding-target block is calculated based on motion vectors of a plurality of adjacent blocks that are adjacent to the encoding-target block" of claim 5. For example, each of the Accused Products supports the H.265/HEVC standard. H.265 offers multiple encoding modes for a target block to be encoded ("encoding-target block") using motion vector information of adjacent block to the target block as to encoding an encoding-target block. As shown below, prior to encoding a motion vector of a target block, the H.265 encoder calculates motion vector information of the target block with respect to neighboring blocks adjacent to the target block to be encoded. Additionally, as shown below, the H.265 encoder utilizes spatial and temporal motion vector predictor information before encoding the target block in a first encoding mode.

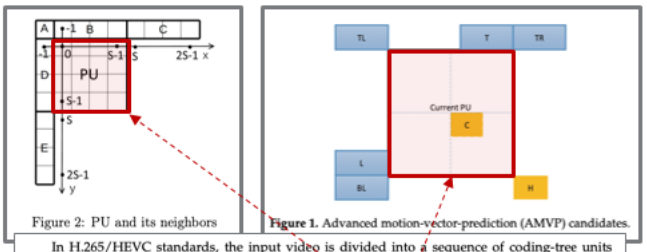


Figure 2: PU and its neighbors

Figure 1. Advanced motion-vector-prediction (AMVP) candidates.

In H.265/HEVC standards, the input video is divided into a sequence of coding-tree units (CTUs), and the CTU is divided into the coding unit (CU) with a different size. The CU is a square region, each of which may be as large as 64 × 64 or as small as 8 × 8. The prediction unit (PU) is a region defined by partitioning the CU, and PU contains MV information. Current PU sizes for intercoded CUs are $2N \times 2N$, $2N \times N$, $N \times 2N$, $N \times N$, $2N \times nU$, $2N \times nD$, $nL \times 2N$, and $nR \times 2N$, where $N \in \{4, 8, 16, 32\}$.

To carry out both types of predictions HEVC defines a special object — *Prediction Unit, (PU)*. In the case of intra prediction *PU* is a square matrix with 4 × 4, 8 × 8, 16 × 16 or 32 × 32 dimensions. In addition to the block which is being predicted the encoder requires pixels of five *neighboring* blocks: A, B, C, D and E. The sets B and C are the extreme bottom lines of the directly upper and upper-right neighboring blocks; D and E — the extreme right columns of the directly left and lower left neighboring blocks; A — is a single pixel located in the lower-right corner of the top-left block. Fig. 2 presents a prediction block and a set of its neighboring pixels.

Table 1: Intra prediction modes and associated names

Mode	Associated Name
0	INTRA_PLANAR
1	INTRA_DC
2, . . . , 34	INTRA_ANGULAR2, . . . , INTRA_ANGULAR34

There are three interprediction modes: InterMode, SkipMode, and MergeMode [12]. For SkipMode and InterMode, an advanced motion-vector-prediction (AMVP) technique is used to generate a motion-vector predictor among an AMVP candidate set including two spatial MVPs and one temporal MVP. For MergeMode, the Merge scheme is used to select a motion-vector predictor among a Merge candidate set containing four spatial MVPs and a temporal MVP. By using rate-distortion-optimization (RDO) processing, the encoder selects a final MVP within the candidate list for InterMode, SkipMode, or MergeMode, and transmits the index of the selected MVP to the decoder. In the case of InterMode, the sum of absolute transform differences (SATD) between the

145. The Accused Products perform the image encoding method of claim 5, where "each of adjacent blocks being an immediate neighbor of the encoding-target block, and each of adjacent blocks preceding the encoding-target block in coding order." For example and as shown below, the adjacent blocks are immediate neighbors of the target block to be encoded by the H.265 encoder. The H.265 encoder performs a raster scan where each block is coded independently by following a scan order. As further shown in the example below, the left and top neighbor blocks

are encoded prior to encoding the target block, while the right and bottom neighbor blocks are encoded subsequently after encoding the target block

.

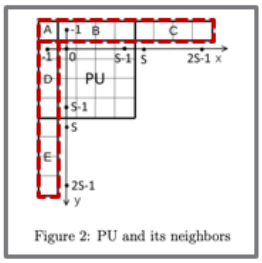


Figure 2: PU and its neighbors

cycles determine *raster* scan of the four blocks. It should also be noted that when blocks are subdivided, each block is coded independently, and service information is transmitted in the bitstream for each of them.

"each of adjacent blocks preceding the encoding-target block in coding order"

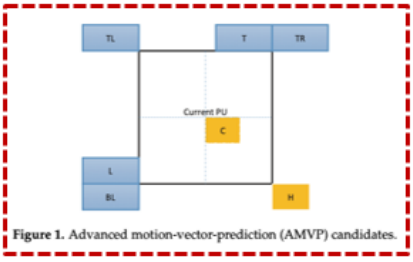
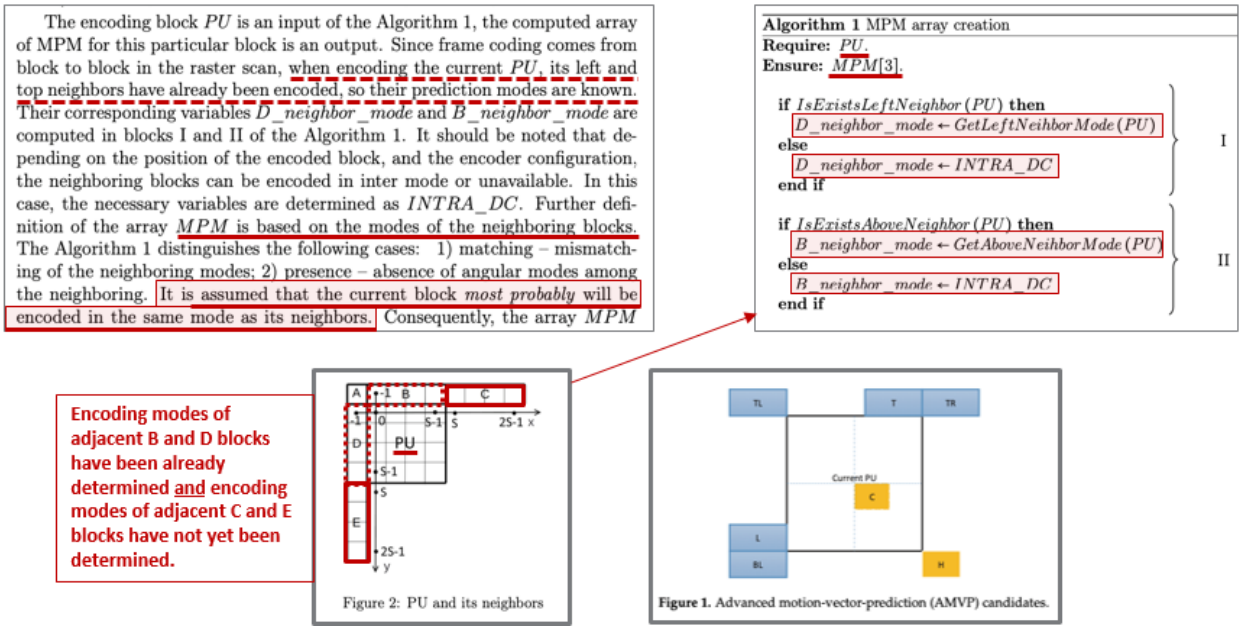


Figure 1. Advanced motion-vector-prediction (AMVP) candidates.

The encoding block *PU* is an input of the Algorithm 1, the computed array of MPM for this particular block is an output. Since frame coding comes from block to block in the raster scan, when encoding the current *PU*, its left and top neighbors have already been encoded, so their prediction modes are known. Their corresponding variables *D_neighbor_mode* and *B_neighbor_mode* are computed in blocks I and II of the Algorithm 1. It should be noted that de-

146. The Accused Products perform "speculatively calculating, when the adjacent blocks include an adjacent block whose encoding mode has not yet been determined and in case the encoding-target block is to be encoded in the first encoding mode" of claim 5. The H.265 encoder creates an MPM (Most Probable Mode) array based on the modes of the neighboring blocks comprised of possible encoding modes to encode the target block. As shown below, when the encoding mode of the blocks adjacent to the target block (in the below example neighboring blocks C and E) are not determined, the H.265 encoder assumes a most probable mode to encode the target block ("speculatively calculating") in case the target block is to be encoded in ("in the first encoding mode") the encoding modes of encoded neighbor blocks (in the below example neighboring blocks B and D).



147. The Accused Products perform "speculatively calculating, … , one or more motion vector candidates for encoding the encoding-target block in the first encoding mode, each of the one or more motion vector candidates corresponding to one of some or all of possible encoding modes for encoding the adjacent block" of claim 5. As shown below in the example below, the H.265 encoder considers all possible encoding modes comprising motion vector candidates to encode the target block. All of the spatial and temporal vector information used to encode the target block corresponds to the spatial and temporal motion vector information of possible encoding modes for encoding the adjacent blocks.

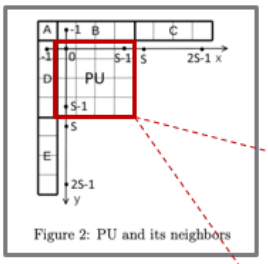


Figure 2: PU and its neighbors

Their corresponding variables $D\_neighbor\_mode$ and $B\_neighbor\_mode$ are computed in blocks I and II of the Algorithm 1. It should be noted that depending on the position of the encoded block, and the encoder configuration, the neighboring blocks can be encoded in inter mode or unavailable. In this case, the necessary variables are determined as $INTRA\_DC$. Further definition of the array MPM is based on the modes of the neighboring blocks. The Algorithm 1 distinguishes the following cases: 1) matching – mismatching of the neighboring modes; 2) presence – absence of angular modes among the neighboring. It is assumed that the current block *most probably* will be encoded in the same mode as its neighbors. Consequently, the array MPM always contains modes of neighboring blocks and some of their «derivative» modes which are calculated differently depending on the type of the neighbors' modes.

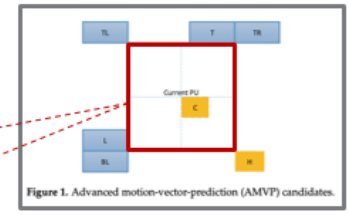


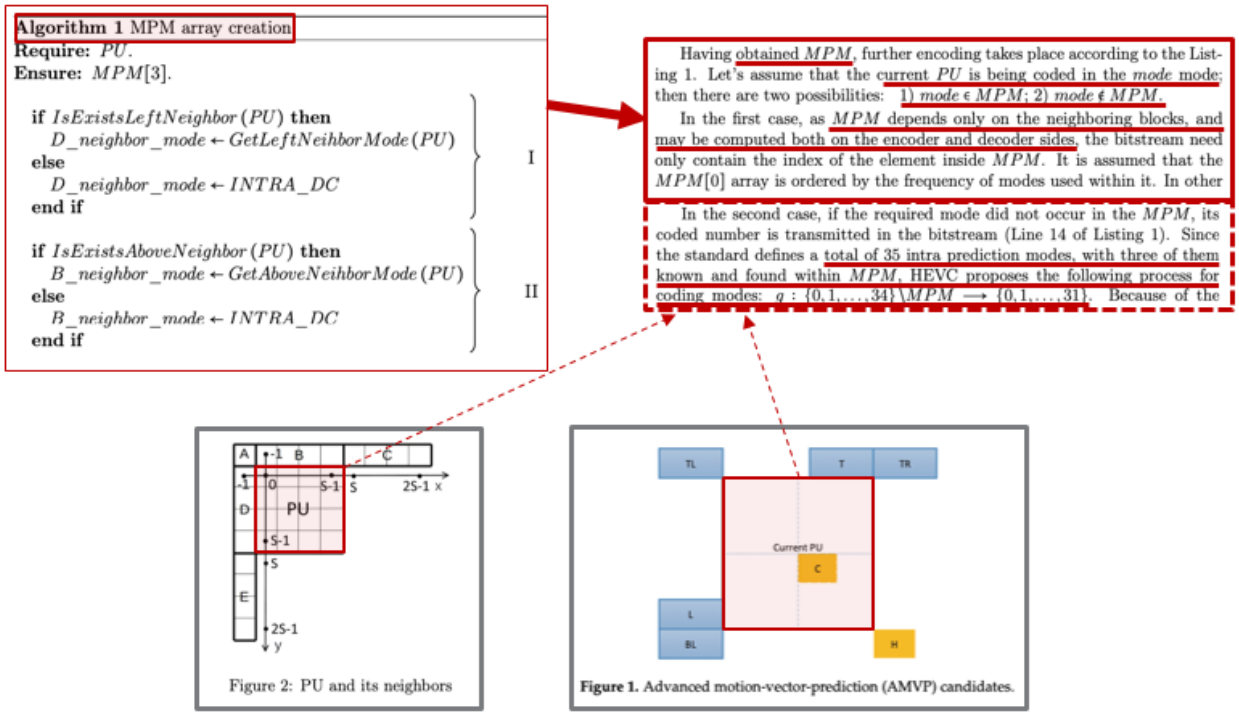
Figure 1. Advanced motion-vector-prediction (AMVP) candidates.

Mode	Frequency	Mode	Frequency	Mode	Frequency
0	**18.245**	12	1.087	24	1.794
1	**9.177**	13	1.267	25	1.242
2	1.418	14	1.559	26	4.164
3	1.218	15	1.667	27	1.28
4	1.365	16	2.265	28	1.92
5	1.422	17	3.394	29	2.134
6	2.426	**18**	**5.491**	30	2.195
7	2.025	**19**	**4.595**	31	1.685
8	1.165	**20**	**4.32**	32	1.567
9	0.835	21	4.073	33	1.67
10	1.353	22	4.049	34	1.728
11	0.831	23	3.373		

In terms of modes occurring in the MPM array there is a difference between intra_main configuration and others for this material. In the first case, the shares of a mode occurring in and missing the $MPM[0]$ array are roughly the same. In the second — the «outside MPM» situation is significantly more frequent. This difference may be explained by the fact that in the inter frame prediction case, the share of the intra mode is relatively low. In other words, the encoder often decides to encode a particular block using inter frame connections rather than intra. According to the Algorithm 1, if a neighboring block is unavailable, the MPM array will get the most probable, in general, modes — 0, 1, and 26, which, according to the results of the experiment, are not optimal for the given video sequence.

Average results of modes occurring in MPM are shown in Tab. 12.

148. The Accused Products further perform "determining, when the encoding mode for the adjacent block is determined from among the some or all of possible encoding modes, one of the one or more motion vector candidates that corresponds to the encoding mode for the adjacent block as a first motion vector for encoding the encoding target block in the first encoding mode" of claim 5. The H.265 encoder determines one or more motion vector candidates corresponding to the encoding mode to be used to encode the target encoding block—this encoding mode ("the first encoding mode") is obtained based on the motion vector information ("a first motion vector") of the adjacent blocks (in the below example blocks B and D) and the H.265 encoder encodes the target block in that encoding mode ("first encoding mode").



Algorithm 1 MPM array creation
Require: PU.
Ensure: $MPM[3]$.

```
if IsExistsLeftNeighbor(PU) then
    D_neighbor_mode ← GetLeftNeihborMode(PU)
else
    D_neighbor_mode ← INTRA_DC
end if
```
I

```
if IsExistsAboveNeighbor(PU) then
    B_neighbor_mode ← GetAboveNeihborMode(PU)
else
    B_neighbor_mode ← INTRA_DC
end if
```
II

Having obtained MPM, further encoding takes place according to the Listing 1. Let's assume that the current PU is being coded in the *mode* mode; then there are two possibilities: 1) $mode \in MPM$; 2) $mode \notin MPM$.

In the first case, as MPM depends only on the neighboring blocks, and may be computed both on the encoder and decoder sides, the bitstream need only contain the index of the element inside MPM. It is assumed that the $MPM[0]$ array is ordered by the frequency of modes used within it. In other

In the second case, if the required mode did not occur in the MPM, its coded number is transmitted in the bitstream (Line 14 of Listing 1). Since the standard defines a total of 35 intra prediction modes, with three of them known and found within MPM, HEVC proposes the following process for coding modes: $g : \{0, 1, \ldots, 34\} \setminus MPM \longrightarrow \{0, 1, \ldots, 31\}$. Because of the

Figure 2: PU and its neighbors

Figure 1. Advanced motion-vector-prediction (AMVP) candidates.

149. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

150. At a minimum, ASUSTeK has known of the '972 patent at least as early as the filing date of the complaint. In addition, ASUSTeK has known about the '972 patent since at least September 24, 2021, when ASUSTeK was provided notice of its infringement via a data room accessible to ASUSTeK. Further, ASUSTeK has known about the '972 patent since prior to the filing of the complaint when it received correspondence, including at least on February 2, 2022, from SPV alerting ASUSTeK to its infringement. Moreover, ASUSTeK has been on notice of the '972 patent as a result of previous lawsuits filed by the Plaintiff against competitors of ASUSTeK and other relevant market participants, such as TCL, Hisense, and Acer.

151. On information and belief, since at least the above-mentioned date when ASUSTeK was on notice of its infringement, ASUSTeK has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the

Accused Products that include or are made using all of the limitations of one or more claims of the '972 patent to directly infringe one or more claims of the '972 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, ASUSTeK does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '972 patent. ASUSTeK intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to H.265 encoding in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

152. On information and belief, despite having knowledge of the '972 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '972 patent, ASUSTeK has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. ASUSTeK's infringing activities relative to the '972 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

153. SPV has been damaged as a result of ASUSTeK's infringing conduct described in this Count. ASUSTeK is, thus, liable to SPV in an amount that adequately compensates SPV for

ASUSTeK's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

CONCLUSION

154. Plaintiff SPV is entitled to recover from ASUSTeK the damages sustained by Plaintiff as a result of ASUSTeK's wrongful acts, and willful infringement, in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court.

155. Plaintiff has incurred and will incur attorneys' fees, costs, and expenses in the prosecution of this action. The circumstances of this dispute may give rise to an exceptional case within the meaning of 35 U.S.C. § 285, and Plaintiff is entitled to recover its reasonable and necessary attorneys' fees, costs, and expenses.

JURY DEMAND

156. Plaintiff hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

157. Plaintiff respectfully requests that the Court find in its favor and against ASUSTeK, and that the Court grant Plaintiff the following relief:

1. A judgment that ASUSTeK has infringed the Asserted Patents as alleged herein, directly and/or indirectly by way of inducing infringement of such patents;
2. A judgment for an accounting of all damages sustained by Plaintiff as a result of the acts of infringement by ASUSTeK;

3. A judgment and order requiring ASUSTeK to pay Plaintiff damages under 35 U.S.C. § 284, including up to treble damages as provided by 35 U.S.C. § 284, and any royalties determined to be appropriate;
4. A judgment and order requiring ASUSTeK to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;
5. A judgment and order finding this to be an exceptional case and requiring ASUSTeK to pay the costs of this action (including all disbursements) and attorneys' fees as provided by 35 U.S.C. § 285; and
6. Such other and further relief as the Court deems just and equitable.

Dated: February 3, 2022

Respectfully submitted,

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